

NASA DAY OF REMEMBRANCE

2023 January 26

ALAA LA-LV 2023 JANUARY | EL SEGUNDO, CA NEWSLETTER





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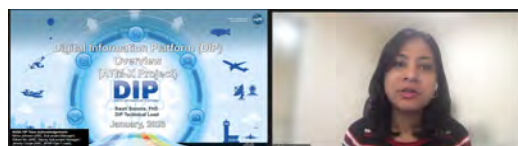
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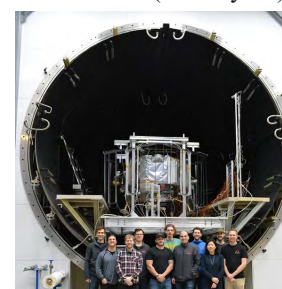
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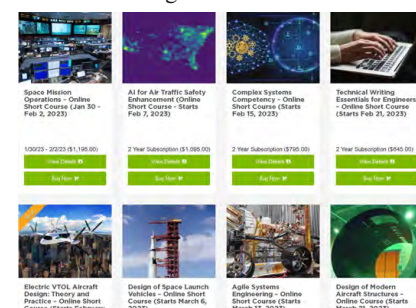
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American Institute of Aeronautics and Astronautics
Los Angeles - Las Vegas Section

Newsletter

(Cover Story) Day of Remembrance Marks 20th Anniversary of Columbia Crew Loss (January 26)

By Linda Herridge, NASA's John F. Kennedy Space Center

<https://www.nasa.gov/feature/day-of-remembrance-marks-20th-anniversary-of-columbia-crew-loss>



– NASA Day of Remembrance –

Each January NASA pauses to honor members of the NASA family who lost their lives while furthering the cause of exploration and discovery, including the crews of Apollo 1 and space shuttles Challenger and Columbia. In 2023, the Day of Remembrance will be observed on Jan. 26, and will also mark the upcoming 20th anniversary of the loss of the Space Shuttle Columbia on Feb. 1, 2003.

<https://www.nasa.gov/specials/dor2023/>

<https://www.youtube.com/watch?v=Hho8VboDRbE>

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(Cover Story) Day of Remembrance Marks 20th Anniversary of Columbia Crew Loss (January 26) *By Linda Herridge, NASA's John F. Kennedy Space Center*



Sheryl Chafee, center, Astronauts Memorial Foundation (AMF) Board of Directors chairperson, accompanied by NASA Associate Administrator Bob Cabana, and Kennedy Space Director Janet Petro, lay a wreath in front of the Space Mirror Memorial during the Day of Remembrance on Jan. 26, 2023, at the Kennedy Space Center Visitor Complex in Florida. The event honored the crews of Apollo 1 and space shuttles Challenger and Columbia, as well as other astronauts who lost their lives in the pursuit of spaceflight. This year marks the 20th anniversary of the Columbia tragedy. This year's ceremony was hosted by the AMF, which was founded after the shuttle Challenger accident in 1986 to honor the sacrifices of fallen astronauts each year. **Credits: NASA/Kim Shiflett**

NASA's Kennedy Space Center in Florida paid tribute to the crew members of space shuttle [Columbia](#), as well as other astronauts who have perished in the line of duty, during NASA's Annual Day of Remembrance. The center's senior management and guests attended the ceremony at the Space Mirror Memorial at [the Kennedy Space Center Visitor Complex](#) on Jan. 26, 2023.

"In a community that frequently commemorates the milestones and achievements made possible through the teamwork and contributions of so many, today is a different kind of observance, a day to recognize and honor those who lost their lives in pursuit of knowledge, and those losses are heavy," said Kennedy Space Center Director Janet Petro.

NASA and the world lost seven brave explorers twenty years ago, on Feb. 1, 2003, when shuttle Columbia broke apart during re-entry. Crew members aboard were Rick D. Husband, mission commander; William C. McCool, pilot; Michael P. Anderson, payload commander; Kalpana Chawla and Laurel B. Clark, mission specialists; and Ilan Ramon, payload specialist from the Israeli Space Agency.

(Cover Story) Day of Remembrance Marks 20th Anniversary of Columbia Crew Loss (January 26)

Columbia launched on Jan. 16, 2003, at 10:39 a.m. EST from Kennedy's Launch Complex 39A, carrying the seven astronauts. The shuttle's payload bay contained the first Spacehab Research Double Module. The 16-day mission was dedicated to a mix of life and physical sciences. On Feb. 1, 2003, during a descent for landing at Kennedy at an altitude of 203,000 feet over north central Texas, a breach in the thermal protection system on Columbia's left wing resulted in the loss of the vehicle and crew.

"This year marks the 20th anniversary of the loss of the crew of Columbia during re-entry of STS-107," Petro said. "For some, that seems like a lifetime. For others, it may seem like a moment. But for our agency, it's a time that lives here in the present—shaping our culture, informing our decisions, and helping us forge the way ahead."

The ceremony also honored the crew members of [Apollo 1](#) and space shuttle [Challenger](#).

"Why do we have a NASA Day of Remembrance?" said Bob Cabana, NASA associate administrator. "It's to honor our fallen comrades. But, more importantly, it's so we do not forget hard lessons learned from Apollo, Challenger, and Columbia. I'm willing to bet that half of the NASA workforce wasn't here when we launched the last shuttle mission. It is so important that they learn these lessons so that they are not repeated again."

Immediately following the ceremony, Sheryl Chafee, Astronaut Memorial Foundation (AMF) Board of Directors chairperson, accompanied by Janet Petro and Bob Cabana, placed a wreath in front of the Space Mirror Memorial, followed by one minute of silence. A bell was rung as the names of each fallen astronaut were read. Guests and the general public in attendance were invited to pay their respects by placing flowers on the fence in front of the memorial.

Immediately following the ceremony, Sheryl Chafee, Astronaut Memorial Foundation (AMF) Board of Directors chairperson, accompanied by Janet Petro and Bob Cabana, placed a wreath in front of the Space Mirror Memorial, followed by one minute of silence. A bell was rung as the names of each fallen astronaut were read. Guests and the general public in attendance were invited to pay their respects by placing flowers on the fence in front of the memorial.



Kennedy Space Center workers and guests place flowers at the Space Mirror Memorial at the Kennedy Space Center Visitor Complex in Florida during the Day of Remembrance on Jan. 26, 2023.

Credits: NASA/Kim Shiflett



Kennedy Space Center workers and guests attend the Day of Remembrance at the Kennedy Space Center Visitor Complex in Florida on Jan. 26, 2023. The event honored the crews of Apollo 1 and space shuttles Challenger and Columbia, as well as other astronauts who lost their lives in the pursuit of spaceflight.

Credits: NASA/Kim Shiflett

(Cover Story) Day of Remembrance Marks 20th Anniversary of Columbia Crew Loss (January 26)

“We take time to pause and reflect, to remember those who have paid the ultimate sacrifice, but also to inspire us to future human exploration,” said Thad Altman, AMF president and CEO. “And to remember all those individuals who made all this possible—engineers, astronauts, administrators. We take this opportunity to reflect on our successes and to be inspired for future missions.”

This year’s ceremony was hosted by the [Astronaut Memorial Foundation](#), which was founded after the shuttle Challenger accident in 1986 to honor the sacrifices of fallen astronauts each year, as well as inspire future generations through hands-on science, technology, engineering, and mathematics learning activities.

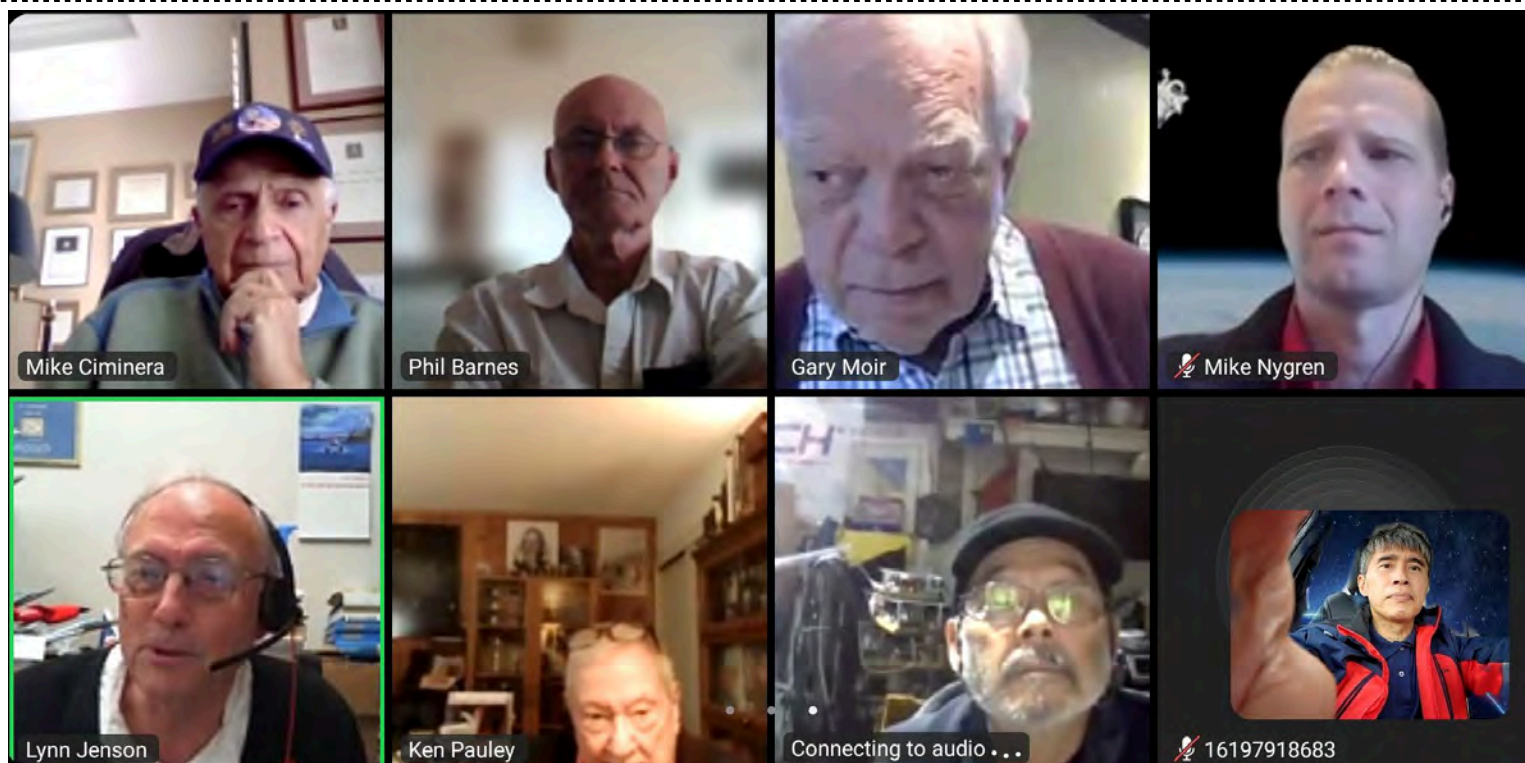
The AMF also built and maintains the Space Mirror Memorial, a 42-foot-high by 50-foot-wide granite monument that displays the names of the fallen astronauts from Apollo 1, shuttles Challenger and Columbia, as well as others who have lost their lives while on NASA missions or in training. In 1991, the memorial was dedicated as a national memorial by Congress and President George H.W. Bush.

View a replay of the ceremony [here](#).

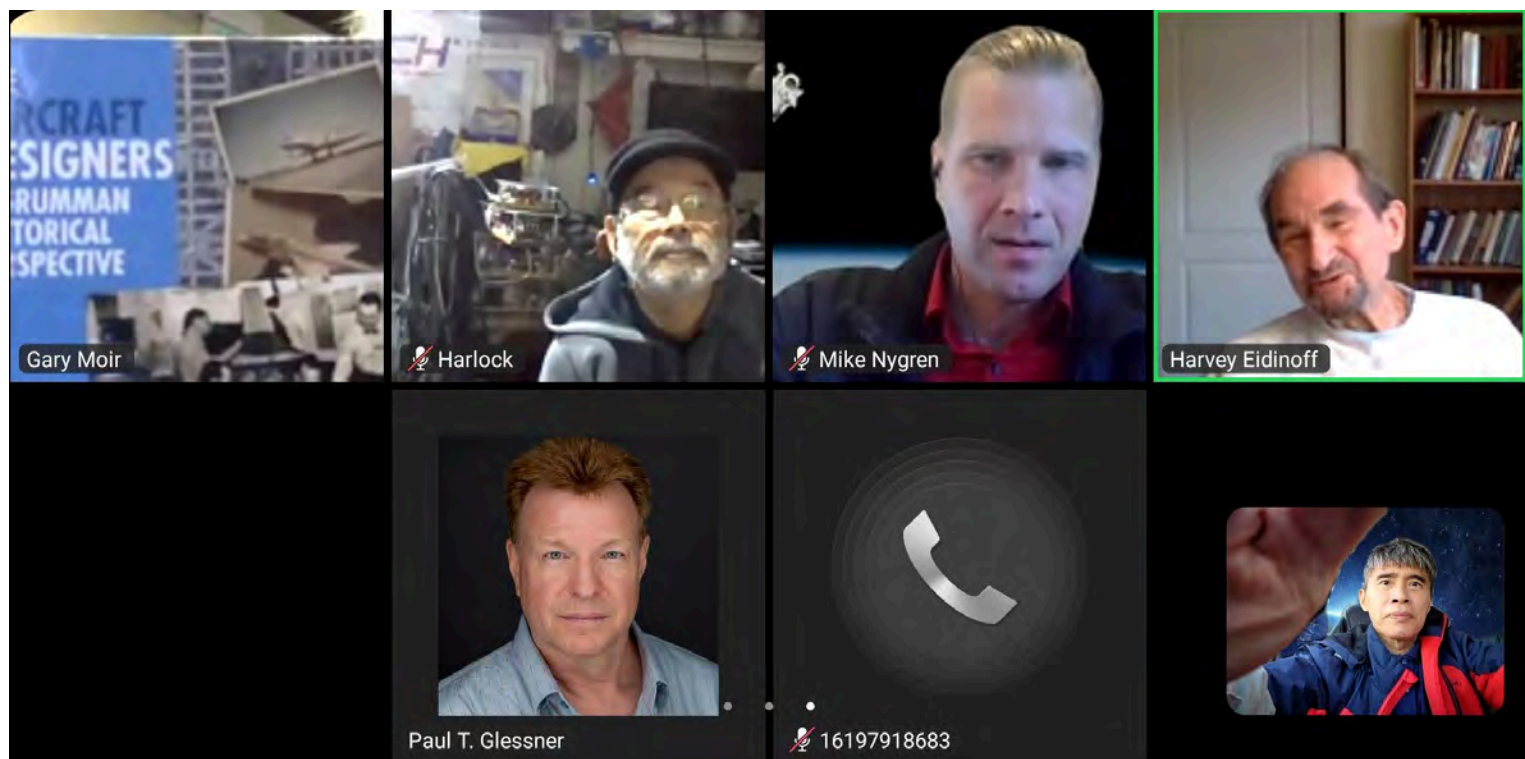
(Left) Display of the AIAA LA-LV Appreciation Certificates for the speakers; (Right) AIAA LA-LV welcomes the attendees and speakers.

AIAA LA-LV Aero Alumni Meeting (January 11)

(screenshots only) <https://www.aiaa-lalv.org/blogs/2023-blogs/january/2023-january-11>



Aero Alumni and attendees gathered together on January 11 and wished Happy New Year! to each other, then exchanged views about interesting aerospace topics including the war in Ukraine, Northrop Grumman history and local heritages/historic sites, and also Mike Ciminera's new book with AIAA.



Some attendees joined late and shared their views at the very end, and Gary Moir showed the book cover of the 1st edition of Mike Ciminera's book. *The Aircraft Designers: A Grumman Historical Perspective* (Library of Flight)

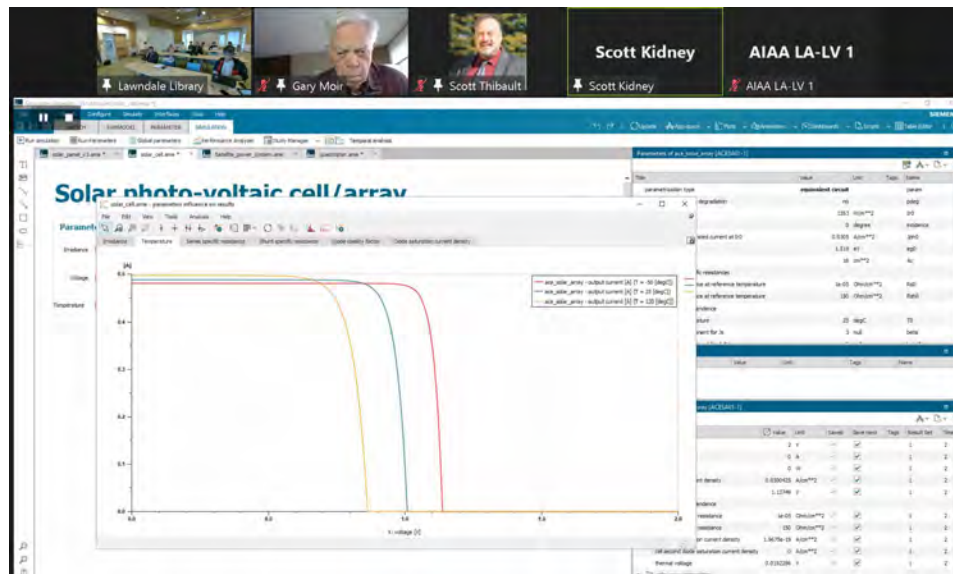
System Modeling of Deployable Space Systems, w/ Scott Kidney & Scott Thibault (January 14) (screenshots only) <https://www.aiaa-lalv.org/blogs/2023-blogs/january/2023-january-14>

ATA Engineering Inc. has been in the industry for a long time. Mr. Scott Kidney and Mr. Scott Thibault from there gave an insightful talk about their efforts in System Simulation for Deployable Space Systems. (Middle Right) Mr. Gary Moir made the introduction.

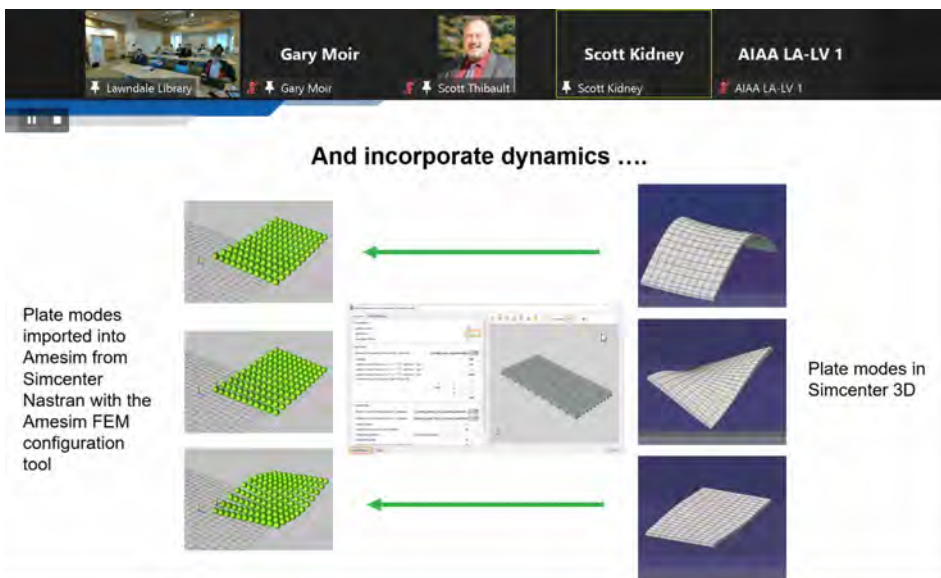
Using Siemens Simcenter Portfolio tools in Predictive Engineering Analytics, one can save time and budget in the design/test cycle.

Mr. Scott Kidney did a demo for satellite solar panel design, using Simcenter tools with easy diagram and connectors, combined with physics models for sub-component, to optimize and trouble-shoot.

System Modeling of Deployable Space Systems, w/ Scott Kidney & Scott Thibault (January 14) *(screenshots only)*

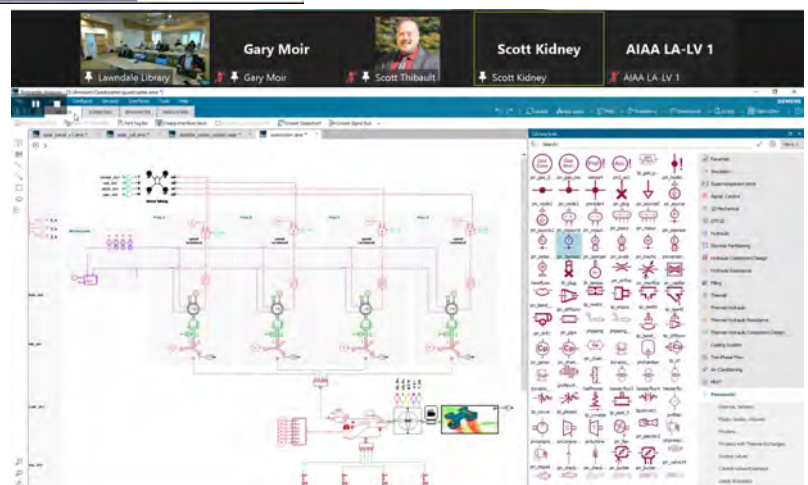


It can provide system performance evaluations and optimal work conditions at different sunlight exposure and battery configurations.



(Left) This set of tools can also incorporate dynamics, and even make movies.

(Right) There are many system components that can be accessed easily just by drag-and-drop. The design cycle is much shorter with safer and better performances.



System Modeling of Deployable Space Systems, w/ Scott Kidney & Scott Thibault (January 14) *(screenshots only)*

Who Are ATA Engineering?

We are an **employee-owned** small business with a **full-time staff** of **over 190**, more than 160 of whom are degreed engineers

38 Ph.D.
95 M.S.
28 B.S.

WE'RE HIRING!

Full-Time Professional Positions: <https://www.ata-e.com/careers/professional-job-openings/>
Co-Op and Internship Programs: <https://www.ata-e.com/careers/co-op-internship-programs/>

ATA ENGINEERING, INC.

ATA Educational Webinar Series - For Public Release

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Scott Thibault
Gary Moir
Scott Kidney
Lawndale Library

Mr. Thibault made an informative introduction to ATA Engineering Inc., and the showed the open professionals and internship/Co-Op opportunities, encouraging professionals and students to work with them as they are hiring.

Scott Thibault
Gary Moir
Scott Kidney
Lawndale Library

(Left) This package could do many more things with much easier approach and shorter cycle. Mr. Scott Kidney provided another demo he designed using a drone/UAV.

Scott Thibault
Gary Moir
Scott Kidney
Lawndale Library

(Right) One can also design the interface so the users can visualize the results easily and promptly.

Back to the Moon

by Dr. David H. Levy, Comet and Asteroid Hunter, Co-Discoverer, Shoemaker-Levy 9 (2023 February article)



(Left) Artemis-I mission launch SLS Orion (2022); (right) Apollo 17 liftoff from the Moon (1972)

I shouldn't have been surprised by the complete success of the Artemis mission last fall. NASA's A team of engineers really know what they are doing. The mission was fun to watch, particularly the brilliant light when the main engines lit up, and it provided some hope that we may actually return to the Moon, someday soon.

But somehow, it isn't the same. Something is missing.

For those of us who were alive and young in 1961, do you remember President Kennedy's poignant speech to Congress on May 25, 1961, when he asked the nation to commit itself to landing a person on the Moon? Only three days after my 13th birthday, this was a call I heard distinctly. I did miss the fact that this was the second of three speeches. The first call was during his inaugural address: "Let both sides seek to invoke the wonders of science,

Back to the Moon

by Dr. David H. Levy, Comet and Asteroid Hunter, Co-Discoverer, Shoemaker-Levy 9 (2023 February article)

instead of its terrors. Together let us explore the stars...” And at Rice University he gave his third: “We choose to go to the Moon.”

On August 25 of the summer of 1960, I observed a 99.2% partial eclipse of the Moon in which the shadow of the Earth covered almost all of the Moon. I remember, a few years later, setting up my first telescope, Echo, across the street to time the Moon passing in front of star, and explaining to a priest who was passing by, that what I was doing might actually assist the Moon mission planning. Or not.

I have already written about where I was on July 20, 1969, during that emotional moonwalk. I listened attentively as the astronauts on Apollo 13 somehow managed to return safely home after the near-disaster of Apollo 13. And I watched the interminable countdown hold when, on December 6, 1972, the countdown was stopped just thirty seconds before launch. About two **hours later the launch was completely successful, and the program’s only** geologist, Jack Schmidt, conducted a field excursion 240,000 miles from Earth, in the Taurus-Littrow **valley of the Moon’s southern highlands.** I was enormously pleased and proud of Jack,” recalled his teacher Gene Shoemaker, “but I was also wistful. There but for a failed adrenal gland, went I.” Because of Addison’s disease, Shoemaker never made it to the Moon, at least not in life.

Back to the Moon

by Dr. David H. Levy, Comet and Asteroid Hunter, Co-Discoverer, Shoemaker-Levy 9 (2023 February article)

After he died in 1997, some of his ashes landed on the Moon aboard Lunar Prospector.

In the 1960s, I used the Apollo project to intensify my own passion for observing the Moon through telescopes and binoculars. In 1961, Kennedy set the goal. Eight years later, humans walked the lunar surface in one of the high points of human civilization. That passion I carry to this day. I still enjoy watching the Moon, looking at its well-known craters and mountain ranges. The Moon is not just a thing in the sky. It is a place. Twelve people have walked across its surface, and with luck, more people will someday stroll across its surface.

I will never walk on the Moon. But through my telescope, I shall continue to view the Moon from southern Arizona. And when my eye touches the eyepiece of my telescope, I will be as close to the Moon as I ever hope to get.

Satellite 101 and How to Build Successful Work Relations in Early Career for Young Professionals (January 19) <https://www.aiaa-lalv.org/blogs/2023-blogs/january/2023-january-19>



Mr. Dennis Leung (right) sharing his own experiences and giving his advice for the young professionals (early career professionals, under 35 years old and above college/university).



(Left) An attendee asking a question and seeking guidance and possible mentorship about things happening at work and for career concerns.

(Right) Courtney Best, our Young Professional Chair of the AIAA LA-LV Section, welcoming all attendees, leading the meeting, as well as explaining the AIAA membership, YP discounts, and the LA-LV Section's efforts to engage, connect, and help Young Professionals (Professionals at their early careers and under 35 years old / above college / university).



Satellite 101 and How to Build Successful Work Relations in Early Career for Young Professionals (January 19) *(photos, screenshots only)*



Mr. Dennis Leung (upper right) spoke about and explained the Integration stage of building a satellite, and shared some of the key issues how to build the work relation with colleagues and customers. (Middle right) Prof. Shelley (CSU Long Beach) joined and shared views as well.



In this Satellite 101 presentation, Mr. Dennis Leung explained the basic engineering aspects of making satellites, with the emphasis on engaging the young professionals and understanding their needs, with his long years and rich & diverse experiences.

Satellite 101 and How to Build Successful Work Relations in Early Career for Young Professionals (January 19) *(photos, screenshots only)*



(Front) Courtney would add comments and share her own experiences occasionally; (back) Jose listened with great enthusiasm, and asked some very good questions during the meeting.

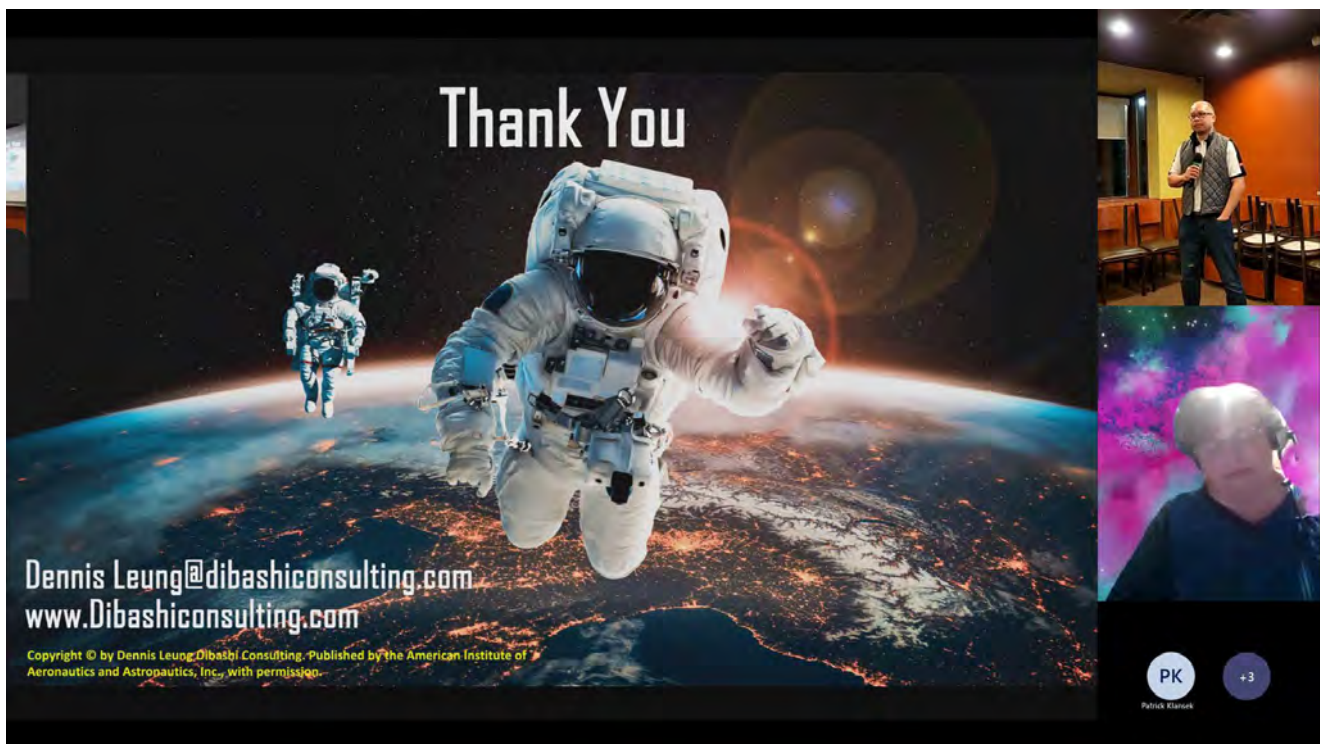


(Left) Some of the demo components of a satellite brought and shared by Mr. Dennis Leung (he was very well prepared!). The fruit bowl showed the fun in this meeting. (Wish you could join us next time and enjoy as well.) (Right) The speaker answering questions.

Satellite 101 and How to Build Successful Work Relations in Early Career for Young Professionals (January 19) *(photos, screenshots only)*

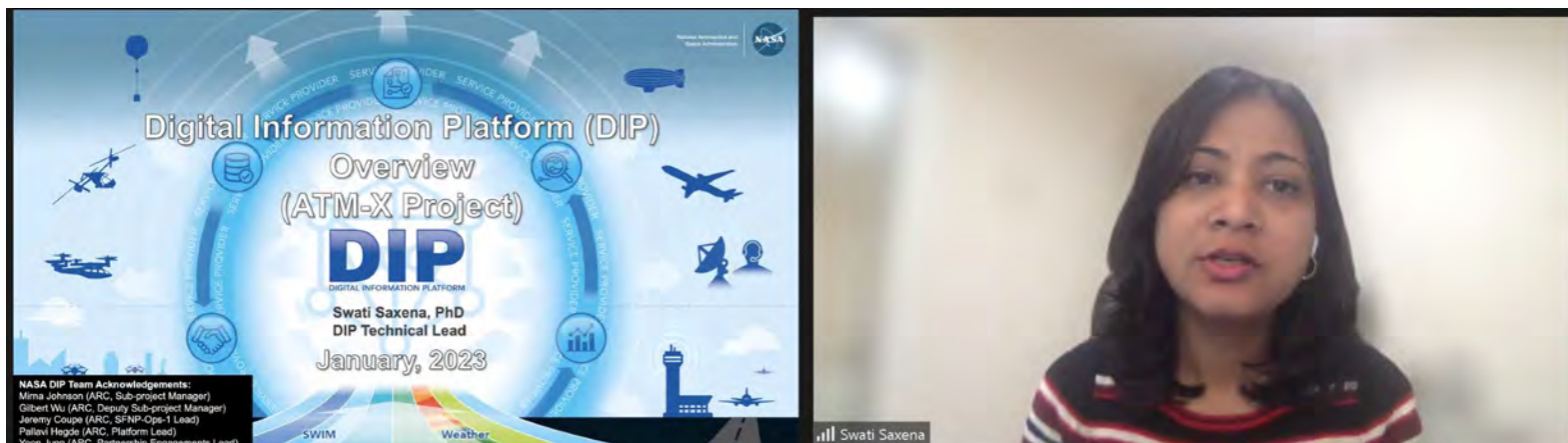


(Left) It was really fun and informative. And the attendees got to know each other well and had warm interactions and networking.
 (Right) Membership and organization information is important to help people know more about the benefits and values.

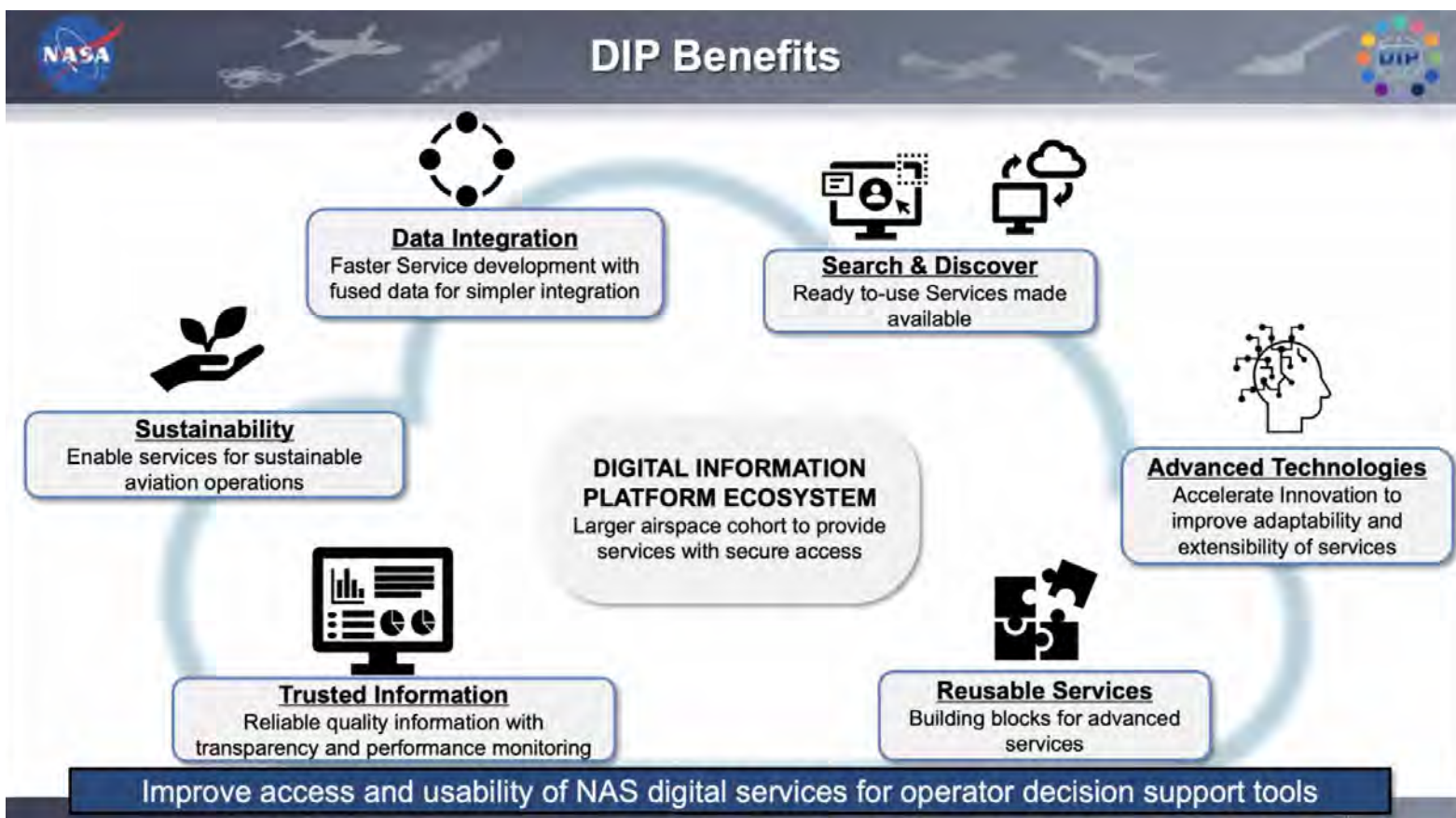


Mr. Dennis Leung (upper right) was very well-prepared and his slides were very beautiful and professional. He concluded his presentation with a high remark. (Middle right) Prof. Shelley (CSU Long Beach) bid farewell and would continue to participate and help.

NASA's Digital Information Platform (DIP) to Accelerate NAS Transformation, by Dr. Swati Saxena (January 21) <https://www.aiaa-lalv.org/blogs/2023-blogs/january/2023-january-21>

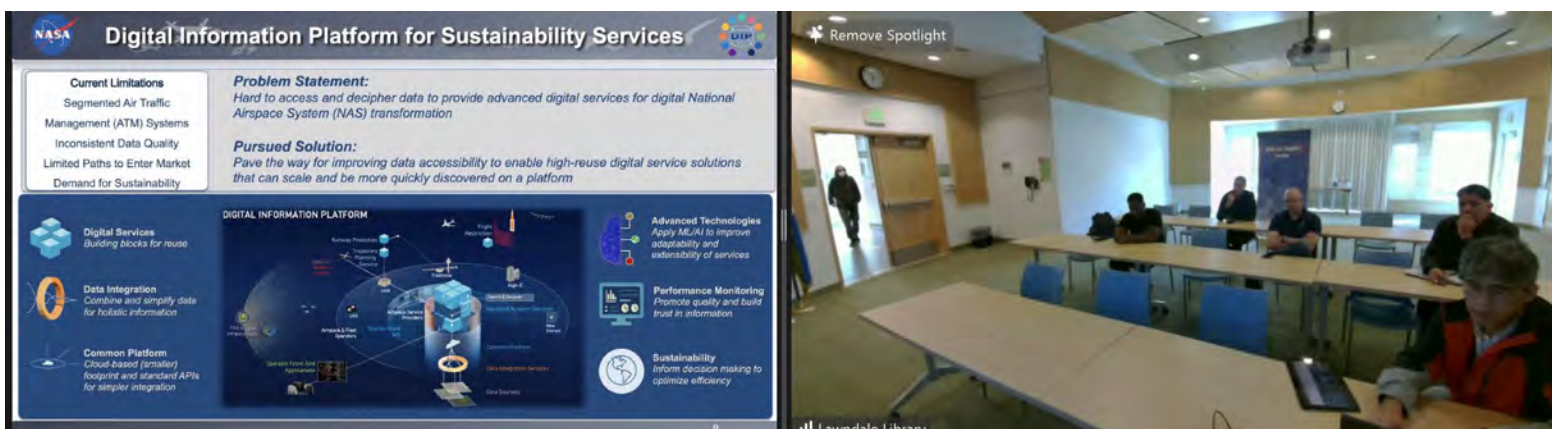


Dr. Swati Saxena (NASA Ames) (right) making the background introduction remotely for the NASA DIP / ATM-X Project to on-line and in-person attendees, showing the title page of her presentation with the credits / acknowledgment at the lower left of the the cover slide.

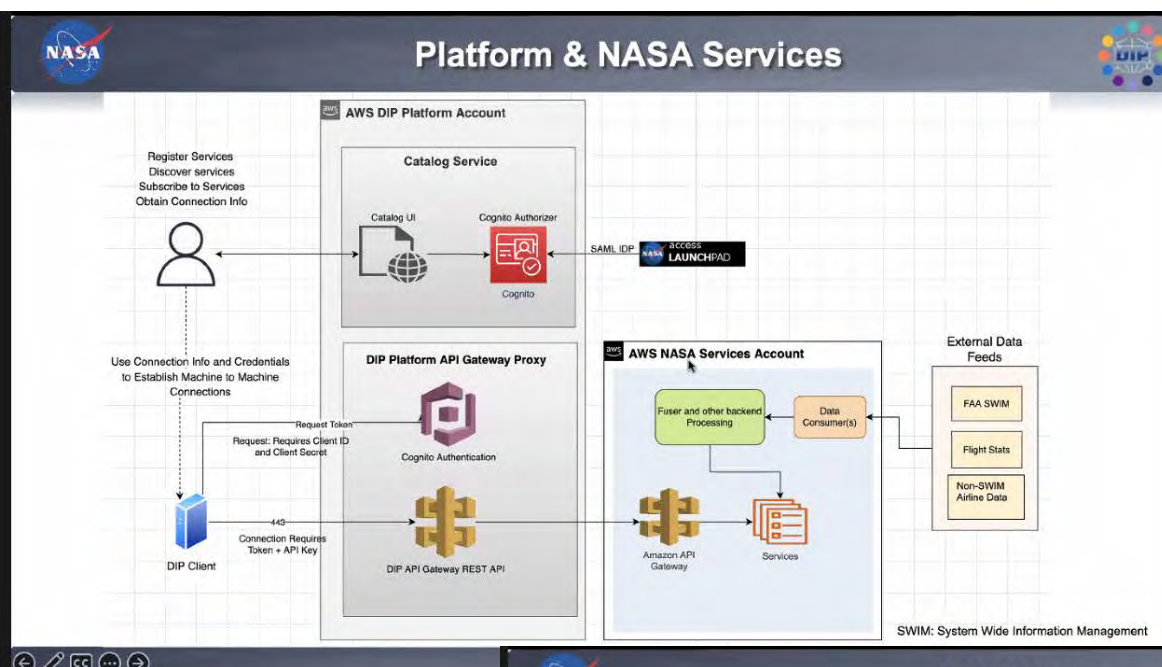


This NASA DIP / NAS project will benefit a wide variety of the industries, from safety, sustainability, re-usability, etc., and will have huge impacts. including economy, efficiency, and environment aspects etc.

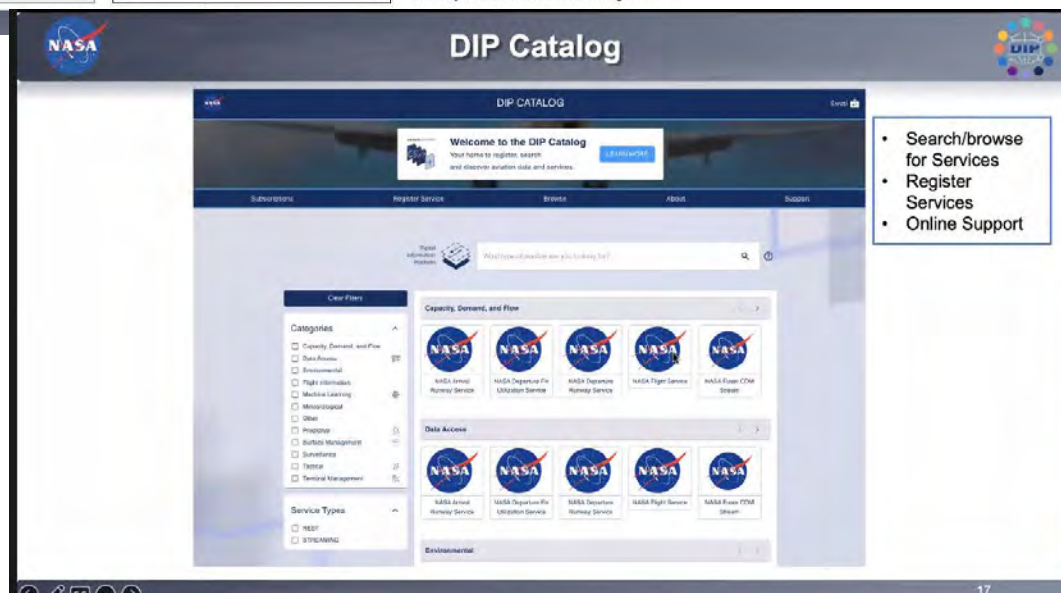
NASA's Digital Information Platform (DIP) to Accelerate NAS Transformation, by Dr. Swati Saxena (January 21) (screenshots only)



(Left) Dr. Saxena explaining the key building blocks and scopes of the project; (right) in-person attendees sitting inside or walking in and out.



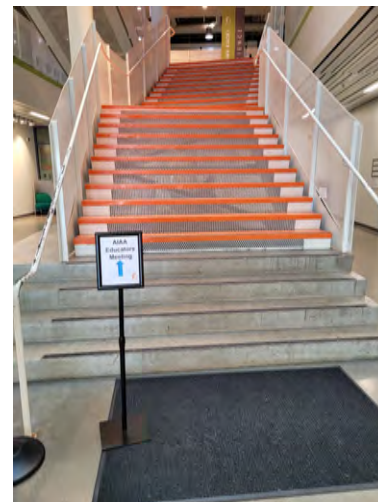
(Left) This NASA DIP NAS project is currently on the AWS platform and includes very useful components, even allowing external data feeds.



(Right) The actual web-based application and friendly user interface, showing the easy-to-use Catalog as an example, along with various testing features and the idea how it works, before the official release.

AIAA LA-LV Educators (K-12 STEAM) Meeting 1/28 at the Da Vinci Schools

(Screenshots, photos only) <https://www.aiaa-lalv.org/blogs/2023-blogs/january/2023-january-28-am>



Thanks to Dr. Steve Wallis and the Da Vinci Schools for the accommodation with wonderful signs/directions and the facility.



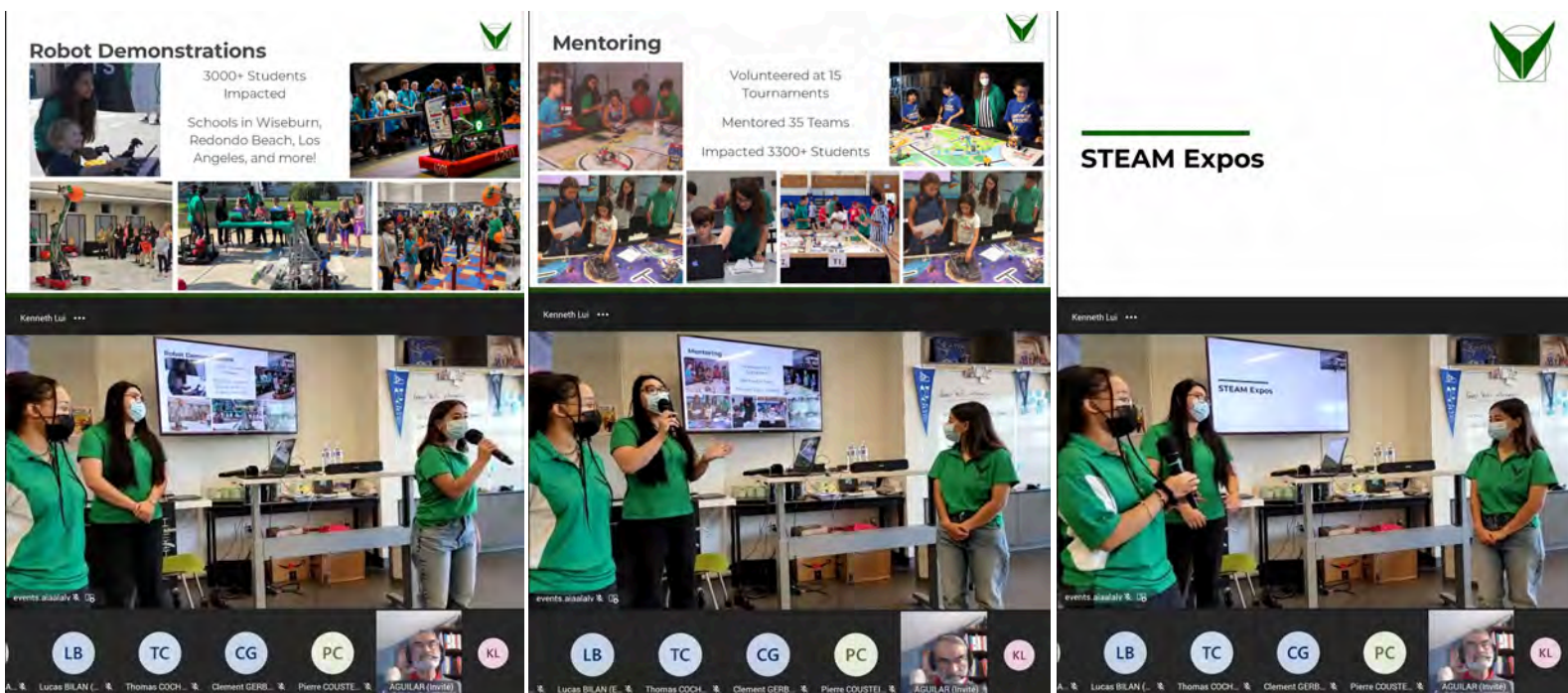
(Left) Check-in table with membership information; (Right) Dr. Ken Lui presented the appreciation certificate for Mr. Dennis Leung for Jan. 19.



(Left) Dr. Ken Lui presented the appreciation certificate to Dr. Wallis and thanked him; (right) Dr. Steve Wallis introduced the Da Vinci Schools and welcomed the attendees.

AIAA LA-LV Educators (K-12 STEAM) Meeting 1/28 at the Da Vinci Schools

(Screenshots, photos only)



The mentor (middle) and 2 students (left and right) of the robotic team from the Da Vinci Schools presented their efforts and the progresses.



(Left) An attendee/educator, Karen, praised the students and asked them to keep the good working, asking them some questions.

(Right) The students shared their experiences and answered the questions from the attendees.



AIAA LA-LV Educators (K-12 STEAM) Meeting 1/28 at the Da Vinci Schools (Screenshots, photos only)



Thermoreactor & Plasma Propulsion

In order to reduce the trip time to Mars from a lunar base, our team has chosen to connect two reactors: the Thermoreactor (patented in the USA) and a plasma propulsion reactor. The Thermoreactor would allow to save fuel with a reduction of 30% to 35% of the specific consumption. Moreover, we want to use the high technology of a variable specific impulse magnetoplasmic thruster (VASIMR). A first estimate indicates that this outward trip would take 30 days at maximum.

Thermoreactor (video) **Plasma Propulsion (VASIMR)** **Mars seen from the Moon**

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ESTACA
 ÉCOLE D'INGÉNIEURS
 GROUPE ISAE

(Left) Mr. Michel Aguilar introducing himself and the ESTACA Students; (Right) ESTACA Students presenting Thermoreactor & Plasma Propulsion (demo video: <https://youtu.be/KRD36HtS6Wo>)

Take-off Assistance Device (TAD)

According to the concept of the ejector, which has been experimented by NASA, it is possible, by adapting the reverse used for landing, to boost the takeoff, and thus to realize important profits in consumption.

Landing/Reverse (video) **Ejector principle** **Booster + Takeoff/-Noise** **Cruise**

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Booster Device (video)

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Lunar Propulsion & Tides

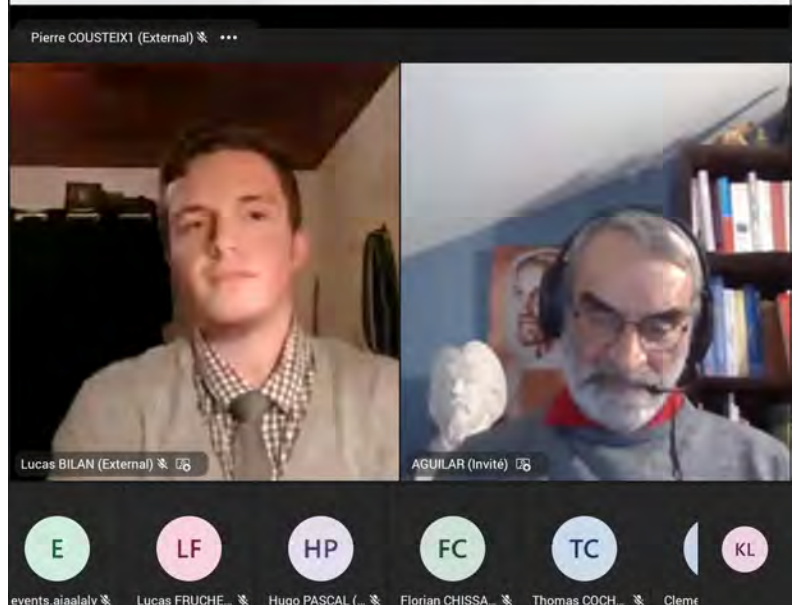
Thanks to the tides generated by the Moon, it is possible to transport people (20 maximum) and goods over 60 km in a capsule travelling at more than 300 km/h without any impact on the environment and especially without fuel consumption.

Lunar Propulsion (video) **Magnetic Levitation** **60 km in less than 20 min.**

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(Right) Two woman students presented the Lunar Propulsion Tides project and concept. (<https://youtu.be/qRpHpHMLtU>)



AUTONOMOUS / AUTOMATIC PILOT
ACTIVE TRACKING BY CONTROL STATIONS
EMERGENCY PILOTE OVERRIDE
CAPSULE ESCAPE SYSTEM
PARACHUTE & AIRBAG SAFETY LANDING SYSTEM

Julien

(Right) Julien, one of the the students on the WIG (Wind In Ground). showed the requirements and concepts for a WIG vehicle and the operation / benefits.

Lucas and Nicolas presented the possible coupling between the Thermoreactor and The Plasma Propulsion.
 (<https://youtu.be/ATfxPqd4c8>)

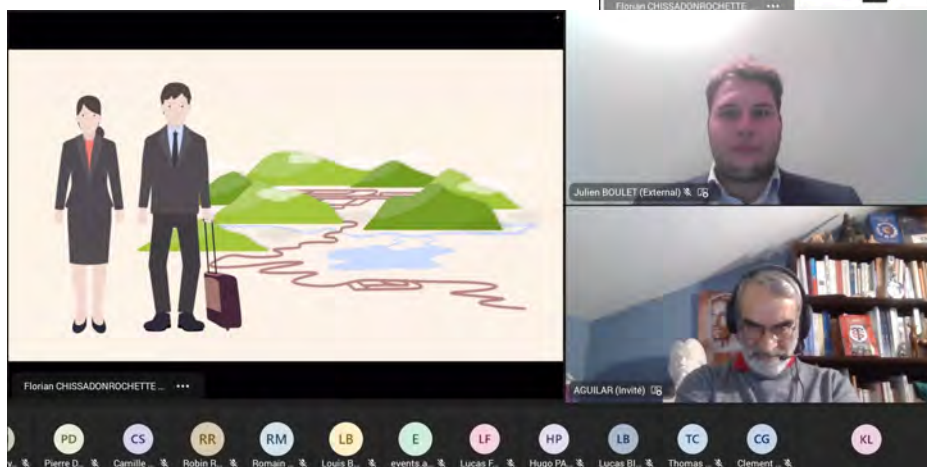
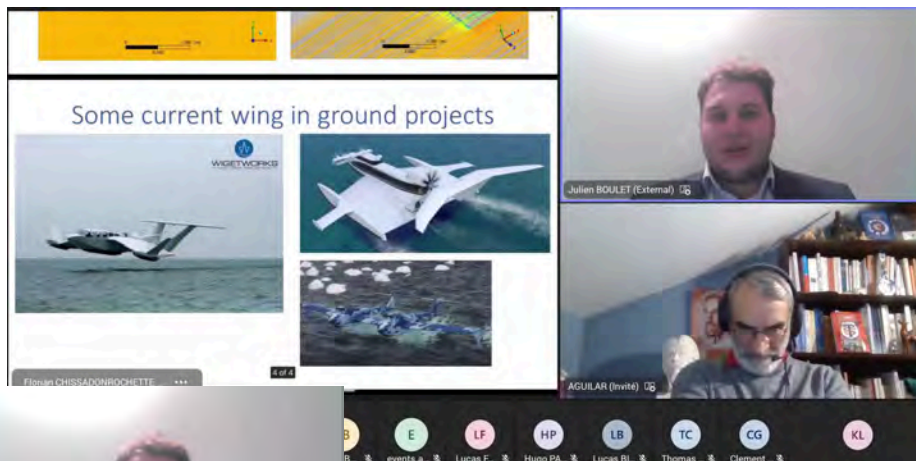
AIAA LA-LV Educators (K-12 STEAM) Meeting 1/28 at the Da Vinci Schools

(Screenshots, photos only)



The students in the TAD booster project showed an interesting video (<https://youtu.be/wL1savfQ9wk>) to demonstrate the concept and design.

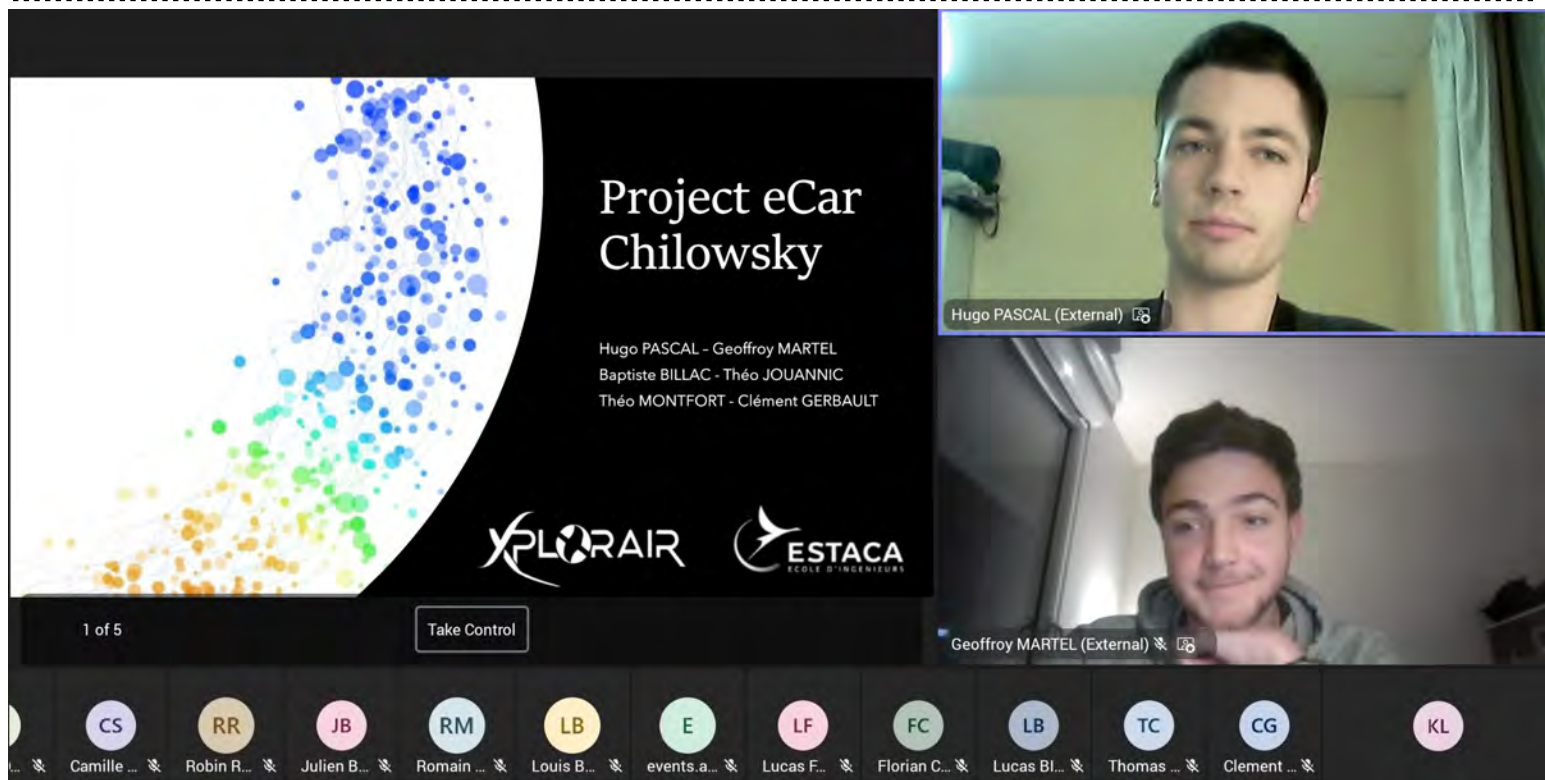
(Right) Julien showed some past and current WIG (Wind In Ground) projects.



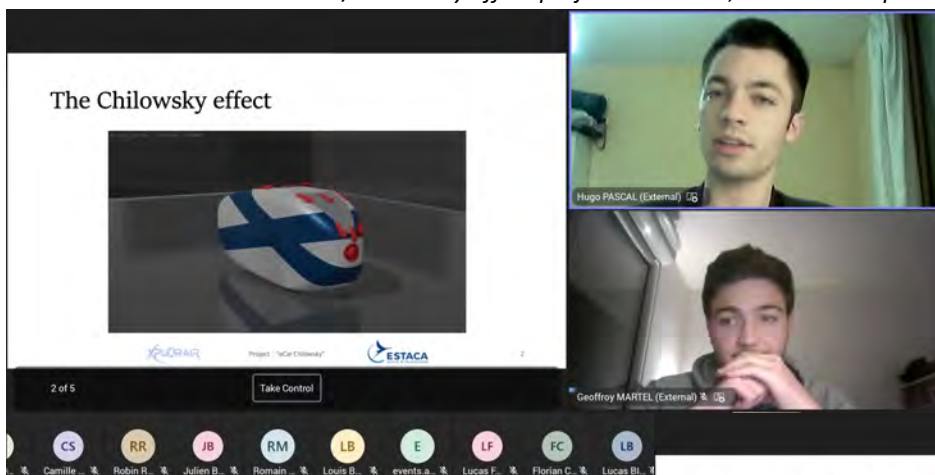
(Left) The students showed interesting videos to explain the vision and benefits for WIG and Urban Air Mobility. (Demo video: <https://youtu.be/nB-0mMJNyIE>, Simulator: <https://youtu.be/VKjwG5yi5pE>)

AIAA LA-LV Educators (K-12 STEAM) Meeting 1/28 at the Da Vinci Schools

(Screenshots, photos only)



The eCar / Chilowsky Effect project in ESTACA, France has 6 participating students, including the 4 presenters.



(Left) Hugo explained the Chilowsky effect and how it is applied to the eCar design.

(demo video:

<https://youtu.be/Z3Y8htRumX4>,

<https://youtu.be/L83s59Nw7q0>)

The students showed the list of parameters and how the battery autonomy improvement should be made.

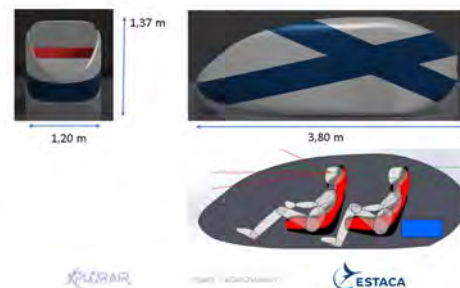
	Entry values (no Chilowsky)	Entry values (with Chilowsky)	
Highway speed	V_{Hwy} 130 (km/h)	V_{Hwy} 130 (km/h)	81 (mph)
Autonomy	D_{Hwy} 500 (km)	D_{Hwy} 500 (km)	313 (mi)
Vehicle mass	M_{veh} 600 (kg)	M_{veh} 600 (kg)	
Chilowsky Coefficient	C_{ch} 1 (l)	C_{ch} 0.72 (l)	
Energy density (volume)	E_{vol} 450 (Wh/L)	E_{vol} 450 (Wh/L)	
Global yield	η 0.72 (l)	η 0.72 (l)	
Battery mass	M_{bat} 532 (kg)	M_{bat} 411.8 (kg)	
Mass difference	Δm 0 (kg)	Δm -220 (kg)	
Equivalent energy density (mass)	E_{mass} 250 (Wh/kg)	E_{mass} 308 (Wh/kg)	
Battery volume	V_{bat} 296 (L)	V_{bat} 219 (L)	
Weight gain ratio	RS_{mass} 0% (l)	RS_{mass} -40% (l)	

AIAA LA-LV Educators (K-12 STEAM) Meeting 1/28 at the Da Vinci Schools

(Screenshots, photos only)



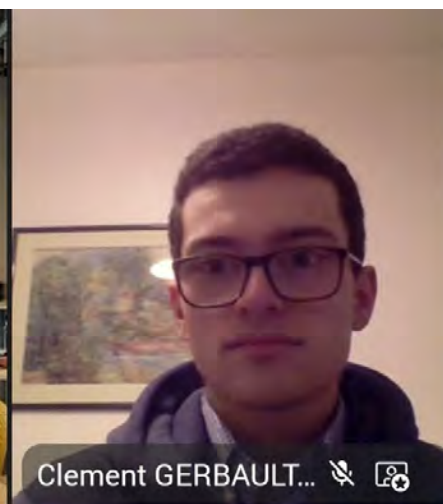
The pod design



(Left) Students from ESTACA in France presenting their studies and designs of the eCar. (right: pod design).



(Right) An attendee praised the students' efforts and encouraged them to keep the good work. The students indicated the first actual scaled eCar will be 3D-printed next year for a wind tunnel test.



The Chilowsky effect



YSLERAIR

Project : "eCar Chilowsky"

ESTACA

2

2 of 5

Take Control



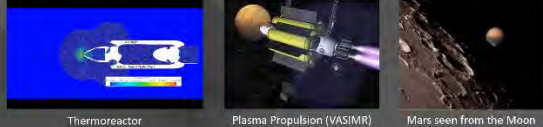
More attendees expressed their interests in the project, and asked more questions.

AIAA LA-LV Educators (K-12 STEAM) Meeting 1/28 at the Da Vinci Schools

(Screenshots, photos only)

Thermoreactor & Plasma Propulsion

Based on a Thermoreactor (patented in the USA), plasma propulsion allows a trip to Mars from a lunar base in less than 30 days



Thermoreactor Plasma Propulsion (VASIMR) Mars seen from the Moon

Project Team ESTACA/Bordeaux (France)

BILAN Lucas: lucas.bilan@estaca.eu
DERAIN Pierre: pierre.derain@estaca.eu
FABE Nicolas: nicolas.fabe@estaca.eu
ROSTOKER Robin: robin.rostoker@estaca.eu
SOLACROUP Camille: camille.solacroup@estaca.eu


2022-2023 Michel Aguilar Designer

ESTACA ECOLE D'INGENIEURS GROUPE ISAE

1

Lunar Propulsion & Tides

Thanks to the tides generated by the Moon, it is possible to transport about 15 passengers free and goods over 60km in a capsule traveling at more than 300km/h without felt effects or impacts on the environment.



Lunar Propulsion (2050) Magnetic Levitation Trip time less than 20 min.

Groupe Projet ESTACA/Bordeaux

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LARCHER Robin: robin.larcher@estaca.eu
GRIMONPONT Killian: killian.grimonpont@estaca.eu
COCHARD Thomas: thomas.cochard@estaca.eu


2022-2023 Michel Aguilar Designer

ESTACA ECOLE D'INGENIEURS GROUPE ISAE

2

Take-off Assistance Device (TAD)

According to the concept of the ejector, which has been experimented by NASA, it is possible, by adapting the reverse used for landing, to boost the takeoff, and thus to realize important profits in consumption.



Landing/Reverse Booster Takeoff Cruise

Groupe Projet ESTACA/Bordeaux

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BOKOZA Léo: leo.bokobza@estaca.eu
CONNAN Thibault: thibault.connan@estaca.eu
FAGOT Enzo: enzo.fagot@estaca.eu
RICHARD Baptiste: baptiste.richard@estaca.eu

2022-2023 Michel Aguilar Designer

ESTACA ECOLE D'INGENIEURS GROUPE ISAE

3

WIG : Wing In Ground effect

Ground effect airplane that allows for a same lift, to reduce its angle of attack and so its drag which induce a lower fuel consumption.



Biofuel / electric 2050 : WIG over an highway Take-off & landing

Groupe Projet ESTACA/Bordeaux

CHISSADON ROCHETTE Florian: florian.chissadonrochette@estaca.eu
FRUCHET Lucas: lucas.fruchet@estaca.eu
MIANNAY Romain: romain.miannay@estaca.eu
BOURCET Louis: louis.bourcet@estaca.eu
BOULET Julien: julien.boulet@estaca.eu
CAUTELA Pierre: pierre.cautela@estaca.eu

2022-2023 Michel Aguilar Designer

ESTACA ECOLE D'INGENIEURS GROUPE ISAE

4

eCar & Chilowsky

An electric vehicle and its Chilowsky device that allows for a significant drag reduction, thus increasing the autonomy of the vehicle up to 50%



Electric car & Chilowsky device

Power consumption reduced by 50% on the highway

Thermic only 105 kW, 600 km Aero-Electric 55 kW, 600 km

Project group: ESTACA Paris-Saclay campus

MARTEL Geoffroy: geoffroy.martel@estaca.eu
JOUANNIC Theo: theo.jouannic@estaca.eu
GERBAULT Clément: clement.gerbault@estaca.eu
PASCAL Hugo: pascal.hugo@estaca.eu
MONTFORT Théo: theo.montfort@estaca.eu
BILLAC Baptiste: baptiste.billac@estaca.eu

2022-2023 Michel Aguilar Designer

ESTACA ECOLE D'INGENIEURS GROUPE ISAE

5

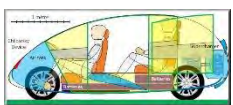
Michel Aguilar (MA)

After joining the French Air Force, MA presented himself as a free candidate for the IETA exam, and joined the “**Corps des Ingénieurs des Études et Techniques d'Armement**”, Aeronautics branch. He has a total of 700 hours of flight experience (including 400 hours as a pilot in chief) as a 1st degree Technical Corps pilot (he has flown on various machines: single engine, sailplane, helicopter, twin engine (C310)). Held various positions at DGA/Paris: STTAe, Hélicoptères du Futur and CEV Brétigny. Then, on detached service at the Ministry of Industry: correspondent for the Quai d'Orsay for East-West technology transfers, representative on the COCOM (Coordinating Committee); participated, on the technical side, in the nuclear forces security group; supervised the INPI/Paris and ONERA (helicopter/DGA). After his return to the DGA at the Centre d'Essais des Landes de Biscarrosse, he retired. He teaches mathematics and physics in private lessons (3rd to Bac +1); scientific journalist at the Dépêche du Midi (Toulouse), and can finally focus on the development of concepts that "obsessed" him. He registered numerous patents, including one on the Thermoreactor (a breakthrough propellant) granted by the USA, Japan and France.

Videos & Presentations on Youtube:



Xplorair VTOL + Simulator (3 minutes, US): <https://youtu.be/7V1Q5NEE3qc>



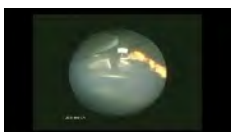
New eCar Chilowsky (1 minute, US): https://youtu.be/1dRLOXC_L-8



Mines ParisTech (3 minutes, FR): <https://www.youtube.com/watch?v=lqh0RCIa3GY>



Takeoff Assistance (1 minute, US): https://youtu.be/9vMcdWb_tPQ



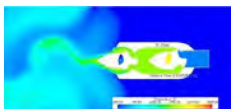
Piston Combustion (ONERA, 30 sec): <https://youtu.be/0gwT91NX35E>



« The Car in 30 years », M6 Turbo (8 minutes, FR): https://youtu.be/gsv0CQC_nlo
(last sequence)



Thermoreactor Test (Poitiers, 1 minute, US): <https://youtu.be/df-K1glkHdA>



Thermoreactor (Temperature CFD, 14 sec) : <https://youtu.be/KZ1Sx23tHM4>



Thermoreactor Explained (2 minutes, FR): <https://youtu.be/2QlbqYN28yM>

AIAA LA-LV Educators (K-12 STEAM) Meeting 1/28 at the Da Vinci Schools

(Screenshots, photos only)



Xplorair **WIG** (Wing In Ground effect, 17 sec): <https://youtu.be/TYTTwYHWUOQ>

“Obus” Chilowsky Effect, 1917 (4 min, mute): <https://youtu.be/IXbEiuJhIdI>

Seminar **Meudon** 2022, **Thermoreactor** (3 min, US): <https://youtu.be/mDDg-bk2QGQ>

Conversion **ThermoTurbine** (9 sec): <https://youtu.be/ecXFU0XSao0>

Thermoreactor **Trinôme** (6 sec, US): <https://youtu.be/UtRkBsH16zw>



Propulsion **Moon** (1 min, US): <https://youtu.be/CTAybo1JAXc>

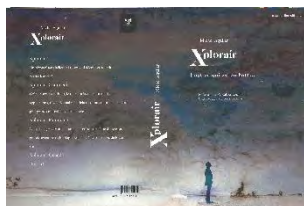


Movie « *Man and the Flying Car* » (53 min, FR): https://youtu.be/hO6R_Cup_B4

Illustrations



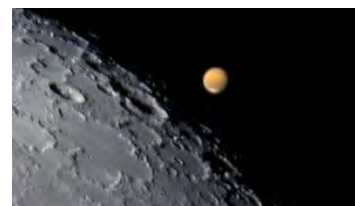
Xplorair **Green**



Book 2020



American Institute



Mars seen from the Moon

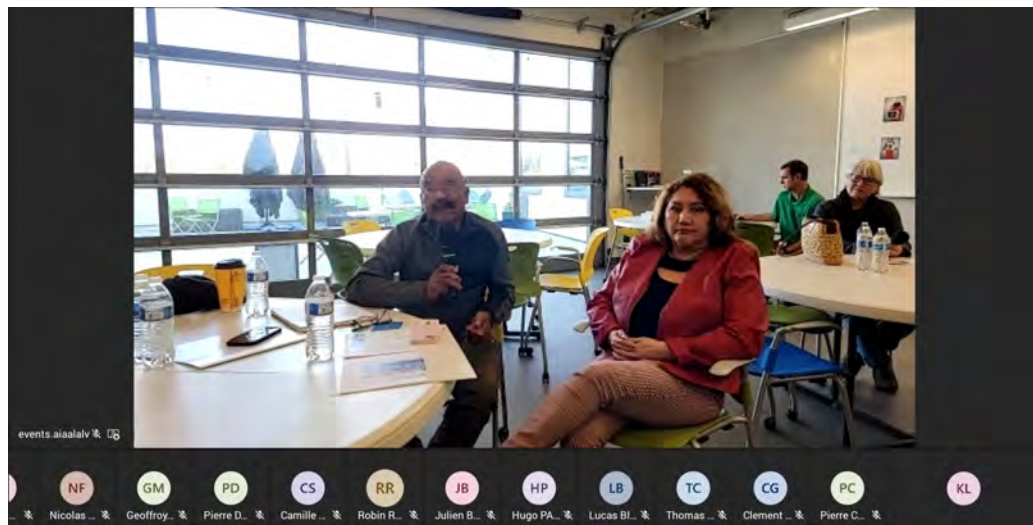


Jean-Marc JANCOVICI



Flying Car (Paris/Madeleine 1922)

AIAA LA-LV Educators (K-12 STEAM) Meeting 1/28 at the Da Vinci Schools (Screenshots, photos only)



It's important for the students to get involved in hands-on laboratory activities, not just academic knowledges.

Dr. Steve Wallis shared his experiences about integrating some local facilities into hands-on education for K-12 students.



Mr. Dennis Leung shared his experiences in handling the community relation and education / outreach support.

(2023 January 28 PM) AIAA LA-LV Exhibition in the Service Academy Day Event

(Photos only) <https://www.aiaa-lalv.org/blogs/2023-blogs/january/2023-january-28-pm>



The AIAA LA-LV Section had an exhibition table / booth on side with the help from Congressman Ted Lieu's Office and the Da Vinci Schools.



Congressman Ted Lieu giving the opening address. He was an Air Force Reserve.

(2023 January 28 PM) AIAA LA-LV Exhibition in the Service Academy Day Event
(Photos only)



Congressman Ted Lieu introducing the speaker for the Air Force Academy, Second Lt. Ellie Beaulieu, and also other speakers.



The Air Force Academy emphasizes the Whole Person Development Concept, with Character, Leadership, and Honor.

(2023 January 28 PM) AIAA LA-LV Exhibition in the Service Academy Day Event (Photos only)



There are also very exciting opportunities with the Space Force.



(Left) The West Point Military Academy is a top quality program with 200+ years of history, producing many leaders such as Gen. Douglas MacArthur, Astronaut Buzz Aldrin, and many others. (Right) "We do things not because they are easy....."

(2023 January 28 PM) AIAA LA-LV Exhibition in the Service Academy Day Event (Photos only)



The Naval Academy is actually also a great path for aviation, and can lead to various careers. Notable graduates include late Sen. John McCain, former President Jimmy Carter, and others including Nobel Prize Laureate, astronauts, NBA All-Star player/athlete, and more.

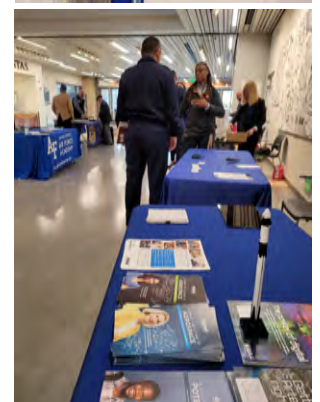
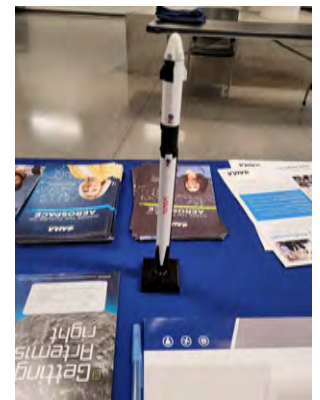


The Coast Guard Academy is also a good track and also include aviation programs, which are women-friendly as well. The Coast Guards save people during disasters as well.

(2023 January 28 PM) AIAA LA-LV Exhibition in the Service Academy Day Event (Photos only)



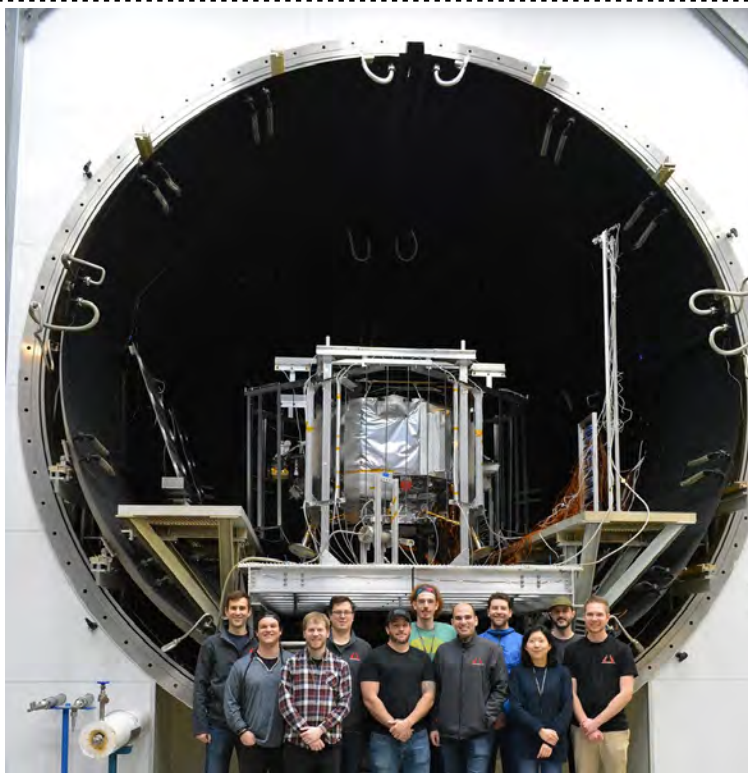
The United States Merchant Marine Academy is another great career path. The graduates work around the world, including delivering logistics to the frontline.



Truly a wonderful experiences! AIAA can also help / enhance the professional careers and education for service men and women. The AIAA LA-LV Section is also working with the communities on Public Policy, Education, Career and Workforce Development.

Peregrine TVAC Testing Successful, Awaiting Green Light for ULA Launch

by Astrobotic (w/ permission) (2023 January 25)



Pictured above: The Astrobotic team poses in front of Peregrine just before thermal vacuum testing.

Astrobotic announced today that its Peregrine lunar lander has successfully completed its entire flight acceptance campaign. Peregrine is now ready to be shipped to Cape Canaveral, Florida when Astrobotic's rocket provider, United Launch Alliance (ULA), gives the green light to receive it.

"Peregrine Mission One's (PM1) flight acceptance campaign was completed on schedule and exceeded expectations. These tests ultimately proved the quality of Peregrine's design and workmanship over the full assembly and integration campaign. Everyone worked diligently, even through holidays, for this incredible achievement," says Sharad Bhaskaran, Astrobotic's PM1 Mission Director.

The final hurdle, thermal-vacuum (TVAC) testing, proved that Peregrine can survive and operate in the thermal and vacuum conditions of space. The spacecraft was subjected to extreme hot and cold temperatures in the thermal vacuum chamber to simulate conditions during its mission. All spacecraft components were functionally tested as well to demonstrate flight-like operations.

Peregrine will be at Astrobotic headquarters in Pittsburgh, Pennsylvania on public display beginning this Thursday, January 26. Visitors can visit the adjoining Moonshot Museum to catch a glimpse of the spacecraft until ULA is ready to receive it in Cape Canaveral, Florida for its journey to the Moon.

About Astrobotic

Astrobotic is the Moon company and more. We develop advanced navigation, operation, power, testing, and computing systems for spacecraft. Our fleet of lunar landers and rovers deliver payloads to the Moon for companies, governments, universities, non-profits, and individuals. To date, we have two fully funded lunar lander missions on the books, and more than 60 prior and ongoing NASA and commercial technology contracts worth upwards of \$350 million. Astrobotic was founded in 2007 and is headquartered in Pittsburgh, PA. www.astrobotic.com

AIAA LA-LV Aerospace News Digests by Dr. Ken Lui, AIAA LA-LV Section



(Jan. 27) Green comet zooming our way, last visited 50,000 years ago



(Jan. 5) Boeing's 2023 Order Book



(Jan. 11) Rocket builder ABL's inaugural launch fails shortly after liftoff, damages launch pad



(Jan. 14) NASA unveils plan for next-generation telescope to search space for signs of life: reports



(Jan. 9) NASA Space Missions Pinpoint Sources of CO2 Emissions on Earth



(Jan. 4) NASA's new X-59 plane is designed to break the sound barrier quietly



(Jan. 13) Kendall Says China's Long Reach is Pushing Air Force Toward New Stealth Tankers



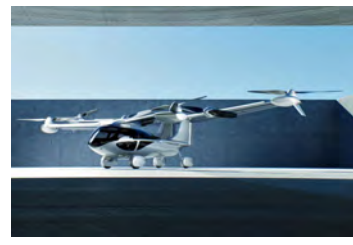
(Jan. 14) New door is opening for Türkiye to return to the F-35 program



(Jan. 13) Virtual Telescope Project Green Comet Live Stream: When To Watch



(Jan. 1) There's no GPS on the moon. NASA and ESA have to fix that before humans return in 2 years.



(Jan. 4) Aska's ludicrous SUV-sized flying car gets closer to reality at CES 2023



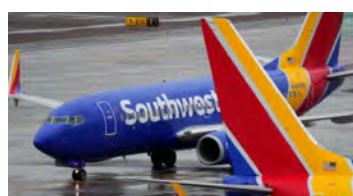
(Jan. 4) N Korea drone entered presidential office no-fly zone: Military



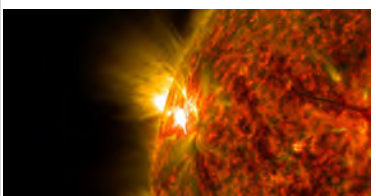
(Jan. 14) SpaceX signs agreement with US National Science Foundation to prevent Starlink's interference with astronomy



(Jan. 5) Boeing Starliner's Crew Flight Test (CFT) patch revealed



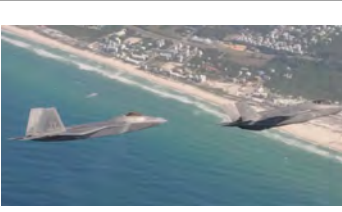
(Jan. 5) Senate plans hearings on Southwest holiday meltdown



(Jan. 4) Earth reaches its closest point to the sun — just in time to be slammed by a solar storm



(Jan. 3) The World's First Flying Motorcycle Could Hit the Skies Soon. Here's Everything We Know.



(Jan. 3) Only 3 countries have managed to build 5th-generation fighters, but nearly a dozen are already working on 6th-gen jets



(Jan. 2) U.S. and China Spar Over Military Aircraft Intercept Over South China Sea



(Dec. 30) Elon Musk's government satellite network Starshield will help pump money into cash-strapped Starlink, experts say

RSVP and Information: (<https://conta.cc/3XWKqGU>)

AIAA LA-LV 2/6 @5:30 PM PST Section (Hybrid) Briefing

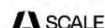
Monday, 2023 February 6, 5:30 PM PST (US and Canada) (GMT -0800)

SCALE: Helping Aerospace Startups Reach New Heights

by

Brija Johnson

Technology Scouting Manager – SCALE Initiative
Physical Sciences and Engineering



WE ADDRESS THE ENTIRE AEROSPACE VALUE CHAIN

Starburst Startup Scope



© Starburst – Not to be distributed

12



Physical Location

Willowbrook Library, Meeting Room

11737 WILMINGTON AVE LOS ANGELES, CA 90059

(South of Hwy 105, East of Hwy 110, and West of Hwy 710)

(Library parking entrance from E 118 St behind / on the side of the Library)

(This event is not sponsored by the Willowbrook Library)

Online on Zoom

(Please register /RSVP and you will receive the ticket with the Zoom link.

Please check Spam or Junk folder shortly after registration to make sure. If not, please try using an alternative email address.)

Tentative Agenda: (All Time PST (GMT -0800)) (US and Canada)

5:25 pm: Welcome

5:30 pm: Introduction + Presentation

5:45 pm: Q/A

6:15 pm: Adjourn.

6:30 pm: (Welcome to stay and also enjoy the presentation starting 6:30 pm: Frontier of the Air Mobility revolution (RSVP and Information: <https://conta.cc/3vUtd4Z>)

Disclaimer: The views of the speakers do not represent the views of AIAA or the AIAA Los Angeles-Las Vegas Section.

Contact: Daniel Scalese, Career and Workforce Development Chair, career-workforce-development-chair@aiaa-lalv.org,

General Contact: contact@aiaa-lalv.org, Events/Program events.aiaalalv@gmail.com

RSVP and Information: (<https://conta.cc/3vUtd4Z>)

AIAA LA-LV 2/6 @6:30 PM PST Section (Hybrid) Meeting

Monday, 2023 February 6, 6:30 PM PST (US and Canada) (GMT -0800)

Frontier of the Air Mobility revolution

with

Shuhei Komatsu

Director, Chairman and Chief Executive Officer
AERWINS Technologies Inc.



Physical Location

Willowbrook Library, Meeting Room

11737 WILMINGTON AVE LOS ANGELES, CA 90059

(South of Hwy 105, East of Hwy 110, and West of Hwy 710)

(Library parking entrance from E 118 St behind / on the side of the Library)

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(Please register /RSVP and you will receive the ticket with the Zoom link.

Please check Spam or Junk folder shortly after registration to make sure. If not, please try using an alternative email address.)

Tentative Agenda: (All Time PST (GMT -0800)) (US and Canada)

6:25 pm: Welcome

6:30 pm: Introduction + Presentation

7:00 pm: Q/A

7:15 pm: Adjourn.

7:45 pm: Meeting Room closes.

Disclaimer: The views of the speakers do not represent the views of AIAA or the AIAA Los Angeles-Las Vegas Section.

Contact: General Contact: contact@aiaa-lalv.org, Events/Program events.aiaalav@gmail.com

AIAA LA-LV 1/11 Section Aero Alumni (hybrid) Meeting

Wednesday, February 8, **11:15 AM - 1 PM PST** (GMT -0800) (US and Canada)

Aero Alumni Meeting

Hybrid in-person luncheon and Zoom on-line meeting

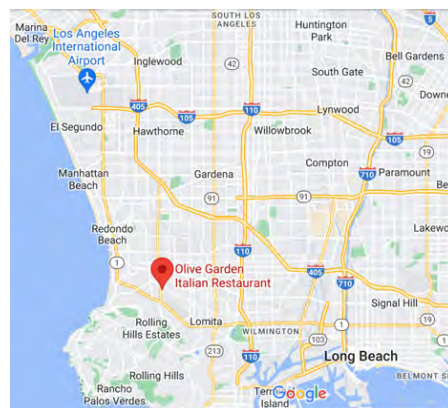
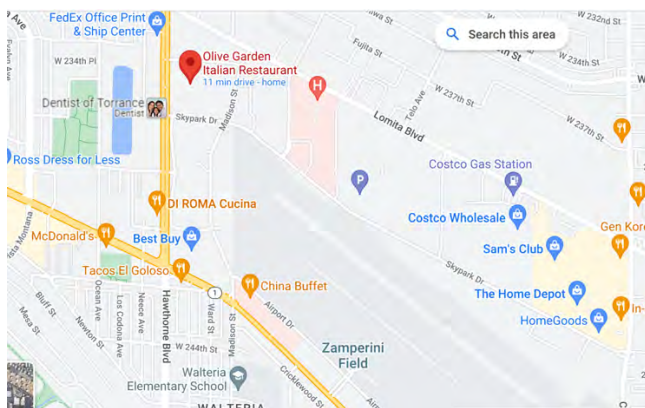
Our monthly Aero Alumni Zoom meeting is at 11 am PST (on-line) / 11:15 am PST (in-person) on February 8. (The 2nd Wednesday of February) It will be a hybrid meeting (both in-person there and on-line) at the Olive Garden in Torrance, 23442 Hawthorne Blvd., Torrance, CA 90505. COVID is again allowing a hybrid meeting. If you can, please join me at the Olive Garden. I'll meet you there. If you can't, you can use the Zoom link below. It will take a few minutes to set up the link. You can chat among yourselves until it's ready.

In-Person in:

Olive Garden in Torrance

23442 Hawthorne Blvd., Torrance, CA 90505

(South of 105/405 Hwy, West of 101 Hwy, North of Pacific Coast Hwy (1))



Online on Zoom:

Join Zoom Meeting: <https://aiaa.zoom.us/j/86807578174?pwd=cFFqM3NGbXJlNGltWVN5Z1F1VWhvdz09>

Meeting ID: 868 0757 8174

Passcode: 265204

One tap mobile +16694449171,,89945449353# US +13462487799,,89945449353# US (Houston)

Dial by your location +1 669 444 9171 US

+1 346 248 7799 US (Houston)

+1 719 359 4580 US

+1 720 707 2699 US (Denver)

+1 253 215 8782 US (Tacoma)

+1 646 558 8656 US (New York)

+1 646 931 3860 US

877 853 5257 US Toll-free

Meeting ID: 899 4544 9353

+Find your local number: <https://aiaa.zoom.us/u/kchGpdtjx1>

+1 689 278 1000 US

+1 301 715 8592 US (Washington DC)

+1 309 205 3325 US

+1 312 626 6799 US (Chicago)

+1 360 209 5623 US

+1 386 347 5053 US

+1 507 473 4847 US

+1 564 217 2000 US

888 475 4499 US Toll-free

Please contact Mr. Gary Moir (gary.moir@ingenuir.com)

RSVP and Information: (<https://conta.cc/3CJnin6>)

AIAA LA-LV 3/11 Section mini-Conference

Saturday, 2023 March 11, 10:30 AM PST (US and Canada) (GMT -0800)

AIAA LA-LV University Student Branches mini-Conference

Dr. Paul Bevilaqua (Keynote Address),

Dr. Nahum Melamed,

Mr. Dennis Leung,

Mr. Luis Cuevas,

AIAA California State University, Long Beach (CSULB) Branch,

AIAA University of California, Los Angeles (UCLA) Branch,

AIAA University of Nevada, Las Vegas (UNLV) Branch,

AIAA University of Southern California (USC) Branch



Dr. Paul Bevilaqua and (Inventing the Joint Strike Fighter / Skunk Works)



Mr. Dennis Leung



Mr. Luis Cuevas



Dr. Nahum Melamed

Contact:

Luis Cuevas

Education/Collegiate Chair

AIAA LA-LV Section

education-collegiate-chair@aiaa-lalv.org

Events/Program Chair

events.aiaalalv@gmail.com

Physical Location

Lawndale Library (Meeting Room)

14615 Burin Ave., Lawndale, CA 90260

(South of 105 Hwy and East of 405 Hwy/Pacific Coast Hwy (1))

(Near SpaceX Hawthorne, and close to Northrop Grumman Space Park)

(also online for a hybrid event)

(This event is not sponsored by the Lawndale Library)

Disclaimer: The views of the speakers do not represent the views of AIAA or the AIAA Los Angeles-Las Vegas Section.



aiaa-lalv.org | aiaa-lasvegas.org
engage.aiaa.org/losangeles-lasvegas

AIAA On-line short courses in the first half of 2023

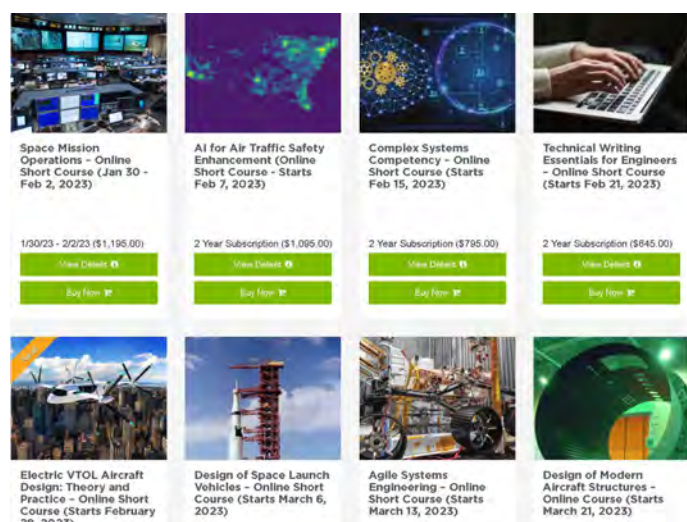
<http://learning.aiaa.org/>

AIAA is offering over 25 online short courses in the first half of 2023 and will provide Member Discounts and group discounts for organizations registering 5+ people for a given course.

All Details at <http://learning.aiaa.org/>

Any question please contact:

Jason Cole, Director, Continuing Education, 800-639-AIAA (2422), jasonc@aiaa.org 703.264.7596 (direct)



Jan 30 - Feb 2	Space Mission Operations
Feb 7 - Mar 2	AI for Air Traffic Safety Enhancement – NEW!
Feb 15 - Feb 24	Complex Systems Competency – NEW!
Feb 21 - Mar 2	Technical Writing Essentials for Engineers
Feb 28 - Mar 30	Electric VTOL Aircraft Design: Theory and Practice – NEW! (Joint with Vertical Flight Society)
March 6 – April 12	Design of Space Launch Vehicles
March 13 – April 5	Agile Systems Engineering – NEW!
March 21 - April 20	Design of Modern Aircraft Structures
March 28 – April 6	Introduction to Propellant Gauging – NEW!
April 5 - April 26	Optimal Control for Unpiloted Aerial Vehicles (UAVs) – Online Guided Short Course
April 11 - April 27	Overview of Python for Engineering Programming
April 19 - May 12	Electrochemical Energy Systems for Electrified Aircraft Propulsion: Batteries and Fuel Cell Systems
April 19 - June 9	Design of Gas Turbine Engines: From Concept to Details – NEW!
April 17 - May 17	Hypersonic Flight Vehicle Design and Performance Analysis
April 25 - May 11	Understanding Aircraft Noise: From Fundamentals to Design Impacts and Simulations – NEW!
April 25 - April 26	OpenFOAM® CFD Foundations
May 2 - May 11	Digital Engineering Fundamentals
May 8, May 15	Essential Model-Based Systems Engineering – NEW!
May 9 - May 11	Launch Vehicle Coupled Loads Analysis: Theory and Approaches – NEW!
May 16 - June 8	Introduction to Aeroelasticity: From Basics to Application – NEW!
May 16 - May 17	OpenFOAM® External Aerodynamics
May 16 - May 25	Aircraft Reliability & Reliability Centered Maintenance
May 22- May 25	Understanding Space: An Introduction to Astronautics and Space Systems Engineering Sustainable
May 23 – June 6	Aviation: Challenges, Design Implications, Recent Advancements, Noise, Emissions,
	Alternative Fuels, Electric Aircraft, and Emerging Technologies – NEW!
June 6	OpenFOAM® Aeroacoustics Modeling
June 7	OpenFOAM® Dynamic Mesh Modeling
June 20 - June 23	Safety Management System (SMS) in Aviation – NEW!
July 19 - July 28	Aircraft Maintenance Management – NEW!